UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/855,602	08/12/2010	Jeffrey A. Bolz	NVDA/SC-09-0264-US0-US1	1255

102324 7590 04/10/2017
Artegis Law Group, LLP/NVIDIA
7710 Cherry Park Drive Suite T #104
Houston, TX 77095

EXAMINER	
TRAN, KIM THANH THI	

ART UNIT	PAPER NUMBER
2612	

NOTIFICATION DATE	DELIVERY MODE
04/10/2017	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

kcruz@artegislaw.com
ALGdocketing@artegislaw.com
mmccauley@artegislaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JEFFREY A. BOLZ and PATRICK R. BROWN

Appeal 2015-000571
Application 12/855,602[1]
Technology Center 2600

Before BRUCE R. WINSOR, SHARON FENICK, and
MICHAEL M. BARRY, *Administrative Patent Judges*.

FENICK, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134(a) from the Examiner's Final Rejection of claims 1–22. (Appeal Br. 5). We have jurisdiction under 35 U.S.C. § 6(b)(1).

We affirm.

[1] Appellants identify NVIDIA Corporation as the real party in interest. (Appeal Br. 3.)

Invention

Appellants' invention relates to accessing texture objects stored within a texture memory via image units to which the texture objects are attached. Texture objects in texture memory comprise one or more images corresponding, e.g., to distinct levels of detail (LODs) of the texture. To access a texture object, one or more images corresponding to a particular LOD is bound to an image unit, via which the texture object (and the LOD) can then be accessed. (Spec. ¶ 32, Abstract.)

Exemplary Claims

Claims 1 and 3, reproduced below, are exemplary:

> 1. A non-transitory computer-readable storage medium including instructions that, when executed by a processor, perform the steps of:
>
> receiving a texture bind request from an application program, wherein the texture bind request includes an object identifier that identifies a first texture object stored in the texture memory and an image identifier that identifies a first image unit, wherein the first image unit includes one or more references to one or more corresponding images, and each corresponding image is associated with a different level of detail of the first texture object;
>
> binding the first texture object to the first image unit based on the texture bind request;
>
> receiving, within a shader engine, a first shading program command from the application program for performing a first memory access operation on the first texture object, wherein the memory access operation is a store operation or an atomic operation to an arbitrary location in the image; and
>
> performing, within the shader engine, the first memory access operation on the first texture object via the first image unit.

> 3. The non-transitory computer-readable storage medium of claim 1, wherein the texture bind request specifies one or more types of memory access operations that can be performed on the first texture object via the first image unit.

Rejection[2]

The Examiner rejects claims 1–22 under 35 U.S.C. § 103(a) as unpatentable over Grossman et al. (US 2010/0091028 Al; pub. Apr. 15, 2010; "Grossman") and Koguchi (US 2005/0259104 Al; pub. Nov. 24, 2005). (Final Action 3–11.)

Issues

I. Did the Examiner err in finding that Grossman, in combination with Koguchi, teaches or suggests "performing a first memory access operation on the first texture object," as recited in claim 1?

II. Did the Examiner err in finding that Koguchi, in combination with Grossman, teaches or suggests a texture bind request which "specifies one or more types of memory access operations that can be performed on the first texture object via the first image unit," as recited in claim 3?

ANALYSIS

(I) Obviousness Rejection – Claim 1

The Examiner finds that claim 1's limitation of receiving, within a shader engine, a first shading program command from the application program for performing a first memory access operation on the first texture object is taught or suggested by Grossman, in combination with Koguchi. (Final Action 3–5.) Specifically, the Examiner maps Grossman's data store

[2] Examiner has withdrawn the rejection (Final Action 2) under 35 U.S.C. § 101. (Answer 2.)

102 to the recited texture memory that contains a texture object. (*Id.* at 3–4; Advisory Action 2.)

Appellants contend that the data store 102 of Grossman "merely stores parameters of objects, such as geometric descriptions." (Appeal Br. 11; Reply Br. 5–6.) Appellants argue "[t]here is no discussion or disclosure in *Grossman* about any operations that are performed on texture objects." (Appeal Br. 12.)

The cited portion of Grossman refers to Figure 1 as a block diagram of a graphics processing system implementing "a texture level tracking and clamping process." (Grossman ¶ 20, cited by Final Action 4.) Grossman teaches that "data store 102 stores one or more parameters of objects related to texture processing for a graphics rendering system" and continues to explain that "[t]hese can include texture objects as well as geometric descriptions, and the like." (*Id.*) Appellants' argument is premised on an assumption that Grossman thereby teaches that texture objects themselves are not stored in the data store 102, but rather that only other information (parameters) of texture objects are stored there. (Appeal Br. 11; Reply Br. 6.)

Regardless of any ambiguity as to whether the referent of "[t]hese" (which include texture objects) is the "parameters of objects relating to texture processing" or the objects, in light of the entirety of Grossman, we agree with the Examiner's finding (Final Action 4) that texture objects are stored in the data store. While Grossman teaches that "[g]raphics renderer 110 receives descriptions of textured objects from the data store 102," this is the beginning, and not the end, of the process of texture level tracking and clamping taught in Grossman. (Grossman ¶ 20.) Grossman teaches that the texture processor 104 "includes a number of processing components (or modules) that process textures used by a graphics renderer 110." (*Id.*) The disclosure of Grossman with respect to Figure 1 and the texture processor 104 of Figure 1 teaches or at least suggests that texture objects (and not just meta-data pertaining to such objects) are stored in data store 102 and accessed by graphics renderer 110 via texture processor 104 (which ensures the correct level of detail), specifically upon the transmission of information to data store 102 from LOD and address calculator 109 which allows the correct level of detail and location (address) to be accessed for a texture object. (*Id.* ¶¶ 20–22.)

Therefore, we do not agree with Appellants that "there is no discussion or disclosure in Grossman" (Appeal Br. 12) about operations that are performed on texture objects, as memory access operations are taught or suggested by Grossman. We are not persuaded by Appellants' arguments of error in the Examiner's rejection of claim 1 and sustain its obviousness rejection. We also sustain the obviousness rejection of independent claims 13 and 22, not argued separately (Appeal Br. 12), and of dependent claims 2, 4–12, 14, and 16–21, also not argued separately (*id.*).

(II) Obviousness Rejection – Claim 3

Claim 3 depends from claim 1 and recites a texture bind request which specifies one or more types of memory access operations that can be performed on the first texture object via the first image unit. Appellants argue that while Koguchi teaches a shader capable of accessing only a specific area in memory, "[t]his restriction . . . is not equivalent" to the claimed texture bind request. (Appeal Br. 12–13; Reply Br. 7.) Appellants further argue that the cited teachings of Koguchi are "silent with respect to specifying a type of memory access operation." (Reply Br. 7.)

However, the Examiner finds that the teachings of Koguchi, with respect to shaders performing rendering and capable of only accessing a specific area in memory, along with the teachings of Grossman with respect to restricting access to texture based on LOD, teaches or suggests a shader which can only access texture data from specific areas in memory. (Final Action 4–6; Answer 4–5.) Appellants argue the individual teaching of Koguchi instead of the combination applied by the Examiner; such arguments are unavailing. *In re Keller*, 642 F.2d 413, 422–23 (CCPA 1981).

We agree with the Examiner's finding that the combination of the teachings of Grossman with respect to binding the first texture object to the first image (Final Act. 4) with the teachings of Koguchi with respect to the use of a shader restricted to accessing (reading) only certain areas in memory (*id.* at 5–6) renders obvious the claimed limitation.

Thus we are not persuaded by Appellants' arguments of error in the Examiner's rejection of claim 3, or of claim 15, not separately argued (Appeal Br. 13).

DECISION

The Examiner's 35 U.S.C. § 103(a) rejection of 1–22 is affirmed.

Pursuant to 37 C.F.R. § 1.136(a)(1)(iv), no time period for taking any subsequent action in connection with this appeal may be extended.

AFFIRMED